

WHAT IS CLAIMED IS:

1. A transmission component incorporated into a transmission capable of changing a rotational speed of an output shaft relative to a rotational speed of an input shaft by means of mesh of toothed wheels, said component having a nitriding layer at a surface layer, and an austenite grain with a grain size number falling within a range
5 exceeding 10.

2. The transmission component according to claim 1, provided in a form of a rolling bearing rotatably supporting said input shaft, said output shaft, or each of said toothed wheels, said rolling bearing being a tapered roller bearing.

3. The transmission component according to claim 1, provided in a form of a rolling bearing rotatably supporting said input shaft, said output shaft, or each of said toothed wheels, said rolling bearing being a needle roller bearing.

4. The transmission component according to claim 1, provided in a form of a rolling bearing rotatably supporting said input shaft, said output shaft, or each of said toothed wheels, said rolling bearing being a ball bearing.

5. A transmission component incorporated into a transmission capable of changing a rotational speed of an output shaft relative to a rotational speed of an input shaft by means of mesh of toothed wheels, said component having a nitriding layer at a surface layer, and a fracture stress value of at least 2650 MPa.

6. The transmission component according to claim 5, provided in a form of a rolling bearing rotatably supporting said input shaft, said output shaft, or each of said toothed wheels, said rolling bearing being a tapered roller bearing.

7. The transmission component according to claim 5, provided in a form of a rolling bearing rotatably supporting said input shaft, said output shaft, or each of said toothed wheels, said rolling bearing being a needle roller bearing.

8. The transmission component according to claim 5, provided in a form of a rolling bearing rotatably supporting said input shaft, said output shaft, or each of said toothed wheels, said rolling bearing being a ball bearing.

9. A transmission component incorporated into a transmission capable of changing a rotational speed of an output shaft relative to a rotational speed of an input shaft by means of mesh of toothed wheels, said component having a nitriding layer at a surface layer, and a hydrogen content of at most 0.5 ppm.

10. The transmission component according to claim 9, provided in a form of a rolling bearing rotatably supporting said input shaft, said output shaft, or each of said toothed wheels, said rolling bearing being a tapered roller bearing.

11. The transmission component according to claim 9, provided in a form of a rolling bearing rotatably supporting said input shaft, said output shaft, or each of said toothed wheels, said rolling bearing being a needle roller bearing.

12. The transmission component according to claim 9, provided in a form of a rolling bearing rotatably supporting said input shaft, said output shaft, or each of said toothed wheels, said rolling bearing being a ball bearing.

13. A method of manufacturing a transmission component incorporated into a transmission capable of changing a rotational speed of an output shaft relative to a rotational speed of an input shaft by means of mesh of toothed wheels, wherein

5 said component is formed at least by carbonitriding steel for a bearing's component at a temperature higher than an A_1 transformation point and then cooling the steel to a temperature lower than the A_1 transformation point and subsequently reheating the steel to a range of temperature of no less than the A_1 transformation point and less than said temperature applied to carbo-nitride the steel, and quenching the steel.

14. The method of manufacturing the transmission component according to claim 13, wherein said range of temperature at which the quenching begins is 790°C to 830°C .

15. A tapered roller bearing having an inner ring, an outer ring, and a tapered roller, wherein at least any one of said inner ring, said outer ring and said tapered roller has a nitriding layer and an austenite grain with a grain size number falling within a range exceeding 10.